

The Passive Solar Firewood Dryer

https://northernwoodlands.org/knots_and_bolts/passive-solar-firewood-dryer



My greenhouse has had a lot of jobs over the years. Originally, it was intended to grow greens in winter and start seedlings in spring. Later, it served as a barn for sheep and goats. Now, it has found its true calling – as our passive solar firewood drying kiln, a.k.a. a greenhouse woodshed.

We still had livestock when I had my ah-ha moment. I stopped, looked at that greenhouse, then glanced over at our haphazardly covered woodpile. Later I told my wife that, if we ever got rid of the animals, I had great plans for that structure.

A greenhouse makes a perfect woodshed. It keeps rain and snow off the valuable product of my hard labor. Adding (free) sunlight turns it into a kiln. Louvered vents in the endwalls (and gaps in the end boards, which aren't

covered by battens) facilitate natural airflow.

I built my passive solar firewood dryer out of 14-foot-long, four-inch-wide green cedar boards, shaped into bows on my workshop floor. (The two boards in each bow are separated by blocks of 2x4.) The whole thing is covered in six millimeter, UV-treated greenhouse plastic. I've learned the hard way that the stuff you get from the hardware store won't last a year before crumbling to bits. The whole setup cost me about \$400. Of course, that was about 15 years or more ago. It's 14 feet wide and 32 feet long and will hold eight to ten cords of firewood, a two-year supply for us.

The greenhouse woodshed dries wood quickly. In late winter, the temperature on a sunny day can get into the 80s in there. By May, it'll be nudging 100; in early summer it turns into a sauna. On a sunny, windless early February day I went out about noon. Ambient temperature was 20°, but inside our woodshed it was 64. The humidity was 20 percent. A moisture meter showed that the wood we're using this winter, mostly red oak and sugar maple cut in the summer of 2012, is in the range of 6 to 8 percent moisture. The wood cut last October for the winter of 2014-15 – mostly birch and red maple – ranges from 12 to 17 percent.

While my homemade greenhouse works well, if I had to do it over, I'd simply buy one with metal hoops. They're affordable, fairly easy to erect, and sturdier. (I have two to grow food in.) I'd recommend a gothic style at least 16 feet wide – I wish I had a little more room to spread out the stacks and improve airflow. I've got landscape fabric on the ground to limit the weeds. It sort of works. But if I were starting from scratch, I'd dig out a little dirt, lay down a plastic moisture barrier, and spread a few inches of gravel on top. My real fantasy greenhouse woodshed would involve a concrete slab.

Still, what I have works well. I get firewood that's matchstick dry. And there are other benefits. On a sunny day, it's a pleasure to load up the firewood cart in a warm place out of the wind, without having to wrestle with a frozen tarp covered with ice and snow. Sometimes I like to play the part of a connoisseur at a firewood buffet. "Hmm, what'll we have tonight?" I'll ask, in my best faux British accent. "Not going to be too cold for the next few days, I think we'll just load up on this nicely dried aspen with a moisture content approximating that of fine furniture." Or, "Gosh, we've got some below-zero weather coming, time

to bring in some of this lovely dried sugar maple and ash.” I tap the chunks together to hear that nice ringing thunk you get from dry wood.

I’m not the only one who likes it out there. My passive solar firewood drying kiln is also home to a few deer mice and meadow voles, who undoubtedly feel like they’re on a tropical vacation. And though I’ve never actually seen them, I know the garter snakes like it, too. In the early spring, I can find half-a-dozen snakeskins.